BEYOND 'REVENUE PER HEAD'?: HUMAN CAPITAL METRICS, FIRM PERFORMANCE AND THE TEACHING OF HRM IN BUSINESS SCHOOLS

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Abstract
The teaching of HRM has long faced reluctance among business school learners. In spite of the growing importance of people issues in business contexts, the lack of adequate measures and links between HRM and the finance arena largely prevents the subject from gaining salience in managers' mindsets. The purpose of this study was to run a comparative analysis of the relationship between quantitative indicators of HRM practices and three different financial indicators: revenue per employee, HC ROI and EBITDA. To that purpose, we have used a database containing actual measures of HRM practices and outcomes for a sample of 144 companies. Using multiple regression analysis, we found that different models of relationships between HRM and firm performance indicators emerged, even when controlling for company size and business sector. In the light of the findings, implications for approaching the teaching of people-related subjects in business schools are discussed.

Keywords
Strategic HRM, firm performance, business school teaching.

Introduction

The teaching of human resources management has traditionally been considered a second-tier subject both by business schools and students worldwide. By contrast with 'big' themes such as finance or marketing, the management of people has not counted with many vocations in these circles (Hammonds, 2005).

In spite of the growing interest of intangibles and employees' issues in the business context, HRM subjects still find reluctance within the business school communities. Some reasons can be found in the intrinsic complexity of individuals and social groups, and the problems around their being considered 'organizational resources'. Several authors have discussed the relevance of people in gaining competitive advantage especially for service companies (Pfeffer, 1998; Barney, 2001), but it is also true that the peculiarities of our human component make it very difficult to quantify our potential for adding value and translate it into business terms (Gratton, 2001).

In addition to this situation, there is one particular aspect of HR that handicaps its capabilities to position as a star for line managers: the lack of adequate metrics supporting decision-making and justifying company investments in the area. As Wayne Cascio (2000) puts it:

> *'…much of we do in the HRM field remains generally misunderstood and underestimated by the organizations we serve. In part, we in the field are responsible for this state of affairs because much of what we do is evaluated only in statistical or financial terms, if at all. Like it or not, the language of business is dollars, not correlation coefficients.'*

Quantification in HRM as long relied on statistical or behavioral measures (Cascio, 2000), but most of the attempts to relate these variables to firm performance indicators in financial terms have failed to fill the gap among them (Boudreau, 2005).

The present paper compares three financial indicators (productivity, EBITDA and human capital ROI) and discusses their differences in their human resource predictors as shown through multiple regression over a sample of 142 companies. By analyzing the implications of introducing any of these ratios as a business referent for HR decisions we claim that the HR areas should take the initiative to choose and combine the use of different financial ratios according to the parameters intended to manage. Implications for the teaching of HRM in business schools are posed in terms of making student aware of both the relevance and the complexity of people as organizational resources.

The work outlines the importance of applying Pfeffer and Sutton's 'evidence-based management' model (Pfeffer and Sutton, 2006a; 2006b) to the people management field, and makes a case for human resource managers to make the most of current technological applications (mainly ERPs) to introduce the use of alternative business ratios closer to their type of resources into their management control systems.

Human resources management, people and business metrics: a history of discords

Behavioral topics have long been considered a marginal topic in the context of business and management education (Rynes et al, 2003). This concern has elicited quite a good deal of debate in the literature, particularly for the last 15 years when the world of intangibles has entered the business arena. Seminal work such as the development of the Balanced Scorecard (Kaplan and Norton, 1996) pushed intangible variables over top managers' desks, even in spite of the acknowledged difficulties in measuring them. Equally, it was only very recently that Baruch Lev's book 'Intangibles - Management, Measurement, and Reporting' (2000) claimed for a change in the traditional, 500-year-old accounting system in order to integrate aspects, such as innovation, that constitute the competitive advantage of many business sectors nowadays.

In spite of these advancements and their impact over managers' awareness of the importance of intangible assets, human resource areas have so far adopted a reactive approach in measuring the impact of HR M policies and people's behaviors in the performance of their firms, and still uses revenue per employee as a business reference. Classical and popular as it is, this measure is not very informative about the essence of human capital or people activity. This situation has been posed not just by HRM specialists but also for accounting academics (Lev and Schwartz, 1971):

> *'Lacking direct measures for labor intensity, economists use indirect ones such as value added per employee, or sales per employee. Such measures are crude because they treat all employees as equal; a highly skilled engineer and a janitor are given the same weight in the measure.'*

One of the reasons for the difficulties in going beyond revenue per employee by quantifying human resource outcomes and policies has to do with the intrinsic nature of the 'human' essence. Along this line, Gratton (2000) outlines 3 aspects that differentiate people as a clear and distinct type of resource:

- the influence of the time dimension in our repertoire of behaviors, which frequently challenges the typical business and financial cycles,
- the impact of our active search for meanings (introducing social and symbolic intelligence as an important source of both inter and intra-individual variability, and
- the existence of individual identities and personal will, which makes us the only owners of our intellectual capital.

Other organizational factors can hinder the development of HRM metrics besides this complexity in capturing our 'human essence' and quantifying it. Until very recently, business has mainly relied on manufacturing and industrial activities, requiring a very partial dimension of the human capital asset. The HRM function was therefore devoted to staffing, basic compensation and personnel administration and labor relations. The dramatic increase in service and knowledge-based businesses has triggered a new vision of the human resource areas (Effron et al, 2003) that still requires evolution on the part of many companies.

This situation has caught the attention of academics such as Boudreau (Boudreau and Ramstad, 2005). These authors state that HRM has to follow a evolution similar to that of other professional practices such as Accounting and Sales, which have given birth to the decision-making disciplines of Finance and Marketing, respectively:

> *'Marketing and Finance serve as frameworks for enhancing decisions about customers and money, and those decisions happen both within and outside the Marketing and Finance functions in organizations. Accounting and sales are essential and important professional practices, and they support and integrate with the Finance and Marketing decision sciences. (…)The evolution of HR and HR measurement will require a sound "decision science" for human capital that truly informs and enhances decisions about human resources wherever they are made.'*

The relationship between HRM and firm performance

Empirical work within the field of strategic HRM has provided ample evidence of the existence of either individual practices (Huselid, 1995) or 'bundles' of practices (MacDuffie, 1995; Guest et al, 2004; Ichniowski, 1997) that support or increase performance in a wide range of different business sectors and under distinct organizational conditions. Those findings have proven very valuable in helping the HR discipline gain salience in the business context. However, some commentators have been critical to the methods used as being biased and therefore limiting the scope of generalization of findings (Guest, 2001; Wright and Boswell, 2002). Reviews of progress in the field by Delery and Shaw (2000) and more recent by Boselie et al. (2005) highlight some of the limitations of these findings. First, analysis have long relied on quantitative survey methods over cross-sectional company samples (Boselie et al., 2005). This can result in problems of heterogeneity in the dependent variable, since even the same financial indicators on a corporate level can be calculated in differently across sectors or types of businesses. Some papers specifically cope with of these problems by using uniform measures of productivity, mainly in the industrial sector (Ichinowski et al, 1997), and doing cross-company analysis within the same sector (MacDuffie, 1995). Closely related to the survey method is the single-respondent issue, which may lead to biases and noise, even if a key-informant method is followed (Osterman, 1988??). This method is widely used, mainly because of unavailability of more objective measures, but poses the serious risk of modelling the HR system in 'desired' terms rather than in 'actual' ones (Guest, 2001). Due to these limitations, the use of alternative methodologies such as qualitative or mixed methods and case studies has been argued to contribute to throw more light into the field (Boselie et al, 2005; Guest, 2001).

Some of the well-established findings in the strategic HRM literature are sometimes challenged when there is a shift from the macro to a micro perspective and individual levels of analysis are involved in the analysis. As Wright and Boswell (2002) note, macro analysis focus on variance across companies and assumes uniformity on the individual level. Research looking into the micro dimension has been scarce so far, but findings elicit a number of questions barely addressed in the SHRM literature. For instance, a study performed with a large sample of employees in the software industry in India (Paul and Anantharaman, 2003) shows no direct link among HR outcomes and firm performance indicators. Conversely,

results argue causal relationships between the HR level and individual outcomes such as employee retention or organizational commitment, which in turn have an impact over operational rather than financial outcomes. On the other hand, Gratton et al. (1999), relying on their above-mentioned emphasis on the time dimensions of business and people and their impact on corporate strategy, propose the existence of different types of linkages among HR and estimated levels of individual performance according to different time scales. Truss (2005), in a longitudinal case study of a UK HP subsidiary, also emphasizes the gap between individual employees' behaviors and organizational performance indicators, and claims the existence of 'conflicting' evidences between intended and actual HR outcomes. These issues (long vs. short term strategies, intended policies vs. actual practices, the role of firm-financial vs. firm-operational vs. individual performance indicators) are just an illustration of the issues coming out when changing the research design in SHRM from the macro, cross-sectional to the micro within-company scopes of analysis.

The teaching of HRM faces a set of issues and problems for which the academic literature has not provided solid answers yet. Some of the preventing a more in-depth analysis of the relationship between HRM and firm performance, as discussed, stem from the lack of access to 'actual' measures of practices. Bridging the gap between academics and practitioners seems be a particularly critical issue in the field (Dipboye, 2005).

Evidence-based management and a scientific approach to HRM measurement

When turning to the practitioners' field we usually find a mismatch between the issues tackled by research and the concerns of HR experts [refs, AMR]. The growing relevance and pervasiveness of Information systems in organizations has facilitated that Human Resource areas accumulate a vast repository of information regarding dimensions of employees' performance. The sort of measures included is being refined as applied research progresses in finding more accurate HRM indicators, quite a fruitful field in recent times especially due to the work of Huselid and Becker (Becker et al, 1996; Becker, Huselid and Ulrich, 2001; Huselid, Becker and Beatty, 2005). A research drawback is that it is difficult to find common grounds for these records on a cross-company basis. Objective outcome-based data, for instance, are only available when an organization has clearly defined and set goals on an individual or team basis, which is not always the case for every company and/or job. Equally, both the contents (definition of variables) and processes (type of ratings, selection of raters, etc.) of performance appraisals largely depend of the HR specific practices implemented in each organization. In any case, these scores can play a relevant role in decisions regarding reward policies such as compensation, promotion, recognition, etc. This is especially true in the case of large organizations, for which HR relies on Management Information Systems (MIS), aggregate analyses and statistical methods in order to design people's strategies.

The importance for practitioners to manage their overwhelming availability of data and the possibility of joining their efforts with the academic community in order to improve organizational decision-making has recently been emphasized by Pfeffer and Sutton in what they call 'the evidence-based management movement' (Pfeffer and Sutton, 2006b; Rousseau, 2006). An idea stemming from the medical practice in the UK in the decade of the 70s, evidence-based practice intends to overcome personal biases and perceptions and make

'conscientious, explicit and judicious use of current best evidence in making decisions (Pfeffer and Sutton, 2006a). One of the keys to this is the design of the data collection process and the selection of the most adequate variables to guide the decision-making process:

> *'Often, managers are confronted with half-truths –advice that is true some of the time, under certain conditions. (…) One hallmark of solid research is conservatism – the carefulness of the researcher to point out the specific context in which intervention A led to outcome B. Unfortunately, that leaves managers wondering if the research could possibly be relevant to them.'*

Financial performance indicators

The business link par excellence in the HRM field has traditionally been a rough indicator of productivity. An overarching definition of productivity is 'the amount of output (in terms of products and / or services) created per unit input used, that is, revenue per employee (or revenue divided by headcount). (refs). This is the result of adapting one of the classical measures used by macroeconomists (namely national productivity, defined as the quotient of national gross domestic product per capita) to the micro-context of the company (Lev and Schwartz, 1971).

Obviously, such an indicator is far from informative about the activity of employees in the organization. Firstly, revenue generation comprises a myriad of factors that may not be directly related to employees' behaviors, such as the impact of the brand on consumers' decisions –one could argue that Coca-Cola's brand is a result of the human intervention in the invention of the beverage's formula, but it would be difficult to impute yearly worldwide revenues of the company to the human cause-. On the other hand, headcount is a plain number not making any reference to the quality of what the 'head' is doing. In spite of its extreme simplicity, this indicator has long been a very powerful trigger of managerial decisions regarding human resources: reducing the denominator seems a tantalizing alternative whenever market pressures require an improvement in financial statements.

The work of Fitz-Enz (2000) represents a certain step forward in the consideration of human efforts and its relevance for firm performance. In order to overcome what has been a historical hindrance to the collection of human-related measures at the company level, Fitz-Enz proposes a formula in which headcount is substituted for its equivalent in pay and benefits. He thus proposes a measure of human capital ROI (HC ROI), calculated as:

$$\text{Human Capital ROI} = \frac{\text{Revenue} - (\text{Expenses} - \text{Pay and benefits})}{\text{Pay and benefits}}$$

The figure represents the amount of profit derived for every monetary unit invested in human capital compensation, that is, the leverage on pay and benefits. It adds on productivity

by providing information about the type of resources in terms of their market value, reflected in salary levels.

Another seemingly related financial indicator is EBITDA (Earnings before Interests, Taxes, Depreciation and Amortization). EBITDA estimates the operational cash flow of a company. This measure is particularly used when companies have large amounts of fixed assets which are subject to high depreciation charges, or (more interesting from the perspective of our paper) when a company has a large amount of intangible assets that should be amortized (Francis et al, 2003). In removing the accounting and financing effects from the calculation, EBITDA is also seen as an estimation of the quality of the use of the resources by companies. Even if it is debated by critics of the 'New Economy', it is increasingly being used as a way to reflect the value provided by intangible capital in managing tangible assets, as well as EVA (Bhalla, 2004).

Summary and Research questions

The review of the literature has raised several issues about the measurement of HRM that have important implications for the teaching of this subject to professional line managers. The much literature in the strategic HRM field devoted to exploring the impact of people policies and practices over firm performance has shown that there is a relationship, the academic field has not consolidated neither a measurement methodology nor a set of well-tested business indicators that can guide both line and HR managers in their decision making about people.

The database that we use for the present study overcomes some of the methodological drawbacks reported in previous work. We rely the analysis on actual indicators of HRM practices, instead of the perceptions of groups of informants. At the same time, data collection is a collaborative work of the researchers with the sample companies, so that indicators are discussed and calculated in the same way, thus maximizing the homogeneity of data per variable.

The overall question in the present paper could be split into the following sub-questions:

1. What are the HRM predictors of different corporate performance indicators?
2. Which financial indicators are more appropriate for guiding HR decisions, in terms of HR power of explanation of their variance?

The work will discuss the implications of our findings for the purposes of teaching HRM in business schools.

Method

Sample

Our sample is comprised of 144 companies participating in an HRM benchmarking analysis
carried out during the period 2003-2005. Companies belong to six different categories of business sectors (manufacturing, transportation, IT, banking & insurance, retail, other) and also differ along size and yearly income. The distribution of the sample along these parameters is shown in Table 1.

[Insert Table 1 about here]

Data collection

Every company received a questionnaire collecting a wide range of more than 100 HRM measures as well as different financial indicators regarding their balance sheet. As for firm performance measures, companies were instructed to provide the official figures reported in their official yearly financial statements, thus guaranteeing the compliance of the calculations with the same standard accounting procedures.

As regards data collection regarding HRM practices, we assumed that a certain degree of heterogeneity according to the different business sectors and internal procedures held by the different companies could be found. In the light of this concern, a previous clarification with HR representatives of every company was arranged beforehand, in order to maximize the necessary rigor and uniformity of the data to be analyzed. Three meetings were thus organized with the companies in order to clarify the specificities of the data and reach a convention whenever necessary[1]. As a result of those meetings, a definition for every indicator was elaborated and included in the final questionnaire. A telephone line was also offered to companies in order to clarify any question rising during the data collection process.

Measures

The three financial indicators presented above were used as dependent variables for the analysis:

- *DV1*: Revenue per employee, calculated as (revenue / headcount)
- *DV2*: Human capital ROI, calculated as (revenue – (operating expense -personnel expense)) / personnel expense
- *DV3*: EBITDA per employee, calculated as (EBITDA / headcount)

The three variables were transformed into z-scores for the purposes of the multivariate analyses.

Independent variables

A total of 20 IVs were used as potential predictors of financial performance. Indicators can be grouped into three different categories:

I. HRM policies and decisions:

- *HR staff:* Number of employees per HR staff member
- *Investment in HR per employee*: total HR budget[2] divided by average yearly headcount.
- *Permanent contracts*: as a percentage of total contracts.
- *Selection rate:* Proportion of individuals in the applicant population considered adequate for hiring.
- *Internal market rate:* proportion of promotions from within the company.
- *Employees under training actions:* as a proportion of average yearly headcount.
- *Training hours per employee:* total training hours divided by average yearly headcount.
- *Investment in training per employee:* total investment in training divided by average yearly headcount.
- *Employees under formal performance evaluation:* as a proportion of average yearly headcount.
- *Employees under performance pay:* as a proportion of average yearly headcount.

II. Human Capital:

- *Gender diversity ratio (total):* number of women as a proportion of average yearly headcount.
- *Gender diversity ratio (executive committee):* number of women as a proportion of members of the executive committee (highest-level decision-making group)
- *Average age of workforce*

III. HRM outcomes:

- *Absenteeism rate*: total hours of absence divided by total working hours (year).
- *Turnover rate:* total number of leaving in the year period divided by average yearly headcount.
- *Attrition rate:* total voluntary leaves (non-induced) in the year period divided by average yearly headcount.
- *Renovation rate:* total voluntary redundancy (induced) in the year period divided by average yearly headcount.

All the IVs were converted in standard z-scores.

Control variables

As described above, we controlled company size for by adjusting the financial indicators to the average headcount[3]. In the case of ROI the control was performed by the payroll figure[4].

Business sector also operated as a control variable. To that purpose an ANOVA was first run in order to identify differences between groups along the dependent variables. Significant differences were found as regards revenue-based measures, while EBITDA revealed as a much more uniform indicator across sectors. Given the existence of such differences, the variable was transformed into a set of dichotomous variables by dummy variable coding and entered in the multivariate analyses, taking the 'Others' group as the reference value.

Results

Descriptive analysis

Tables 2 and 3 summarizes the means, standard deviations, and correlations among the variables. These data show high levels of dispersion for many of the variables included in the study, in particular for the financial ones (including investments both in HR and training per employee). Sample companies keep an average of 88 employees per HR staff member, have a high proportion of permanent contracts (87%). The average age of the workforce for the whole sample of organizations is around 37 years.

The degrees of association of IDs and the DVs outline patterns of relations of HRM practices and outcomes long discussed in the 'best practices' HRM literature. Examples of this are the positive relation between corporate performance and HR staffing, employment stability and investment in training (Pfeffer, 1998). Equally, higher levels of firm financial performance are associated with lower rates of attrition and turnover (Huselid, 1995; Becker et al., 2001). It is also interesting to note that the human capital ROI indicator does not hold any significant correlations with HRM variables, having low *r* values. Being HC ROI, as is productivity, a revenue-based ratio, it actually seems to reflect a different type of measure. The proposition of HC ROI as a more informative indicator of work quality suggested by Fitz-Enz (2001), discussed in the previous sections, would provide support to this finding.

Significant correlation coefficients between the predictor variables were in general low to moderate. In spite of some of the relations holding higher coefficients such as the ones between turnover and attrition (r=0.654), average age and gender diversity (r=-0.591), or average age and attrition (r=-0.588), further diagnostics of multicollinearity did not show an overlap of shared variance among the predictor variables.

[Insert Tables 2 and 3 about here]

Multiple regression analysis

Our aim was to identify the differences in HRM-related predictors for the financial measures collected. To address this issue, a series of multiple regression analyses was performed using SPSS 14 as statistical application (Ho, 2006). In these analyses, the three

measures were regressed on the same list of human capital and HRM process and outcome variables.

Table 4 shows the different combinations of predictor variables entered for productivity, EBITDA and HC ROI. A first glance at standardized coefficients reveals that five of the IVs entered as common predictors for the three financial indicators: HR staffing (employees per HR staff member), renovation rate, training hours per employee, employees under performance pay and number of women in executive committees. Though these predictors are present in the three equations, a comparison of variations in the weights of the beta coefficients and the directions of the effects indicate that the patterns for revenue-based measures bear a larger degree of resemblance. Accordingly, the t-statistic reached significance ($p<0,01$) in productivity and HC ROI for all the predictors, while two variables (the renovation and employees under training variables) did not prove significant in the case of EBITDA. For their part, the two revenue-based measures share their first six most important factors practically in the same order of relevance. Along this line, both productivity and EBITDA share practically the same predictors (the five mentioned above and turnover rate), with only one differentiating variable (number of permanent contracts in the case of ROI and extension of performance evaluation for revenue per employee). Conversely, the regression equation for EBITDA includes a total of eleven factors.

A group of predictor variables failed to enter any of the regression equations, indicating that, though they may be correlated with some of the DVs, they were not significant in predicting their variances. These variables were: investment in HR per employee, investment in training per employee and total gender diversity ratio.

As regards business sector groups, the banking sector showed the largest significant effects over two of the financial indicators, that is, productivity and EBITDA (in this case together with manufacturing). The IT sector entered the equation in the case of HC ROI. The business sector of activity has consequently large and differential influences according to the selection of every singular ratio of corporate performance when analyzing the effects of the intervention of HRM practices.

An ANOVA was used to test the hypothesis of non-linear relationship between the predictors and the dependent variables. The computed statistics for every case reflect a good level of fitness of the regression model to data. In addition, the coefficients of determination were high for all the regressions (adjusted R-Squares of 0.804, 0.844 and 0.847 for productivity, HC ROI and EBITDA, respectively), showing a good level of strength of all of the three computed prediction equations. Values both for R-square and adjusted R-square are also shown in Table 4. Finally, the analysis showed that tolerance values are over 0,10 and all Variance Inflating Factors (VIF) are below 7, thus indicating that there is no multicollinearity among the independent variables.

Discussion

The use of actual measures of HRM practices and outcomes has proven useful in approaching the field of HRM measurement. The tests of goodness of fit show that distinct sets of relationships between HRM practices and outcomes can be modelled whenever we use different indicators of firm performance. This finding is consistent with the growing conviction that the nature of HRM practices ultimately contributes to the success of the firm.(refs).

Some similarities exist among predictors for all of our DVs. In particular, increases of the three financial indicators seem to correlate with larger investments in HR staff, greater extension of the performace-pay system and with larger ratios of gender equality. It would therefore seem that those predictors are good signals of financially-healthy companies. An issue of endogeneity could be raised here, but in this respect we should take into account that none of the indicators of economic investment in human capital (HR or training budgets) have entered the equations. Equally, company size is controlled for in the definition of the DVs, and therefore we cannot infer that these relations are mediated by the larger dimensions of the companies.

Data also show that the effectiveness of several HRM practices can be debated and revised in the light of their comparison with business efficiency measures. A good example is the weight and sign of the predictors regarding extension of performance evaluation and variable pay. While the second is moderate and positive in both cases, the first one is negative, thus reflecting an inverse contribution to revenue and benefit figures. Although it does not necessarily mean that formal evaluation processes should be removed, our data show that their implementation do not seem to support linear, direct increases in revenue or profit, and therefore would require complementary indicators related to other types of outcomes in order to make the case for further investments in the practice. With performance evaluation being related to competency measures rather than tough individual business objectives, this finding opens up interesting further research on how to measure the value than competencies can add to the business.

While similarities may be relevant for stimulating further research, it is even more interesting for the purposes of this work to analyze the differences among the models reflected by the different predictors. Both revenue and EBITDA based measures propose clear-cut mindsets for decision-making purposes, which introduces new light into the debate of HRM measurement. What do the contrasting models tell us? If productivity and/or HC ROI are used as business references for HRM, decisors would tend to decrease the number of training hours, would also take positive actions as far as early retirements are concerned and would control the level of total turnover. The use of EBITDA, by contrast, would suggest a seniority, knowledge-based approach. In order to improve the values of this indicator, decisors would look into voluntary turnover in order to minimize it as well as early retirements. They would also increase the investment in training hours per employee, while at the same time being selective in the groups of participants (the number of employees under training actions is only present in the EBITDA equation and shows a negative sign). Preference for a senior workforce associated with this indicator are shown by the positive and high weight of the average age of employees.

Differences in business sectors, one of our control variables, suggest that the concept of 'universal' indicators might not be adequate for approaching HRM practices and outcomes, since some of the structural and organizational variables having impact over the HRM strategy are to a large extent dependent on market pressures and business characteristics.

The implications of the present study for the purposes of teaching in business schools goes far beyond the HRM subject. A curriculum that trains future managers should transmit awareness on the complexity of people as resources, and to what extent such complexity makes difficult to elaborate accurate measures of HRM practices. Business decision-makers, both current and potential, have to debate extensively on the implications of merely using financial indicators without bearing in mind the impact it may have in their workforce. In addition, HR managers should receive as part of their education an intensive training in measurement methods in order to focus on the most adequate measures of HRM practices and people outcomes. Mastering the language of business and finance should also be an important part of the curriculum for this professional profile, thus allowing a closer relationship with the 'rough business side' of their companies and feeling more confident when making the case for people as profit contributors and value creators.

While this analysis identifies some interesting relationships, we are limited in our causal inferences by the cross-sectional nature of the data. Larger samples per sector would allow to analyze specific details of the operation mode of financial indicators and HRM in a greater detail.

Though the results should be viewed as preliminary, they provide future researchers with some empirical evidence supporting a promising new perspective with which to study HR practices and their relationship with outcomes important for attaining business leadership.

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Table 1. Sample distribution by sector

	Frequency	Percent	Cumulative Percent
Manufacturing	43	29,9	29,9
Transportation	15	10,4	40,3
IT	20	13,9	54,2
Banking & Insurance	22	15,3	69,4
Retail	23	16,0	85,4
Other	21	14,6	100,0
Total	144	100,0	

Table 2. Descriptive statistics

Variables	N	Mean	Std. Deviation
1. Productivity	140	331789,09	310363,32
2. EBITDA per employee	130	48074,26	67716,03
3. HC ROI	132	1,43	4,97
4. Employees per HR staff member	98	88,35	47,28
5. Investment in HR per employee	95	2381,68	5342,17
6. Permanent contracts	142	87,36	16,95
7. Absenteism rate	111	2,89	2,88
8. Turnover rate	135	16,24	23,19
9. Attrition rate	137	5,52	7,11
10. Renovation rate	131	1,58	2,59
11. Selection rate	114	31,43	22,25
12. Internal market rate	127	30,70	26,97
13. Employees under training actions	125	72,68	27,92
14. Training hours per employee	116	3,51	16,97
15. Investment in training per employee	132	616,63	771,79
16. Employees under formal performance evaluation	92	58,76	41,36
17. Employees under performance pay	85	56,53	36,53
18. Gender diversity rate (total)	74	35,25	18,64
19. Gender diversity rate (in Executive Commitee)	74	12,48	12,38
20. Average age of workforce	75	37,64	4,30

Table 3. Correlations among variables.

	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**
1. Productivity																			
2. EBITDA per employee	**0,47**																		
3. HC ROI	**0,53**	0,07																	
4. Employees per HR staff member	**-0,38**	**-0,25**	-0,08																
5. Investment in HR per employee	-0,02	-0,08	-0,03	-0,11															
6. Permanent contracts	**-0,30**	**-0,25**	-0,13	-0,28	-0,03														
7. Absenteism rate	-0,07	-0,01	-0,05	-0,19	-0,06	-0,06													
8. Turnover rate	**-0,25**	**-0,24**	-0,09	-0,25	-0,07	**-0,47**	-0,05												
9. Attrition rate	**-0,27**	**-0,26**	-0,11	-0,07	-0,00	**-0,31**	-0,01	**0,65**											
10. Renovation rate	-0,07	-0,04	-0,14	-0,10	-0,08	-0,07	-0,07	-0,09	**-0,30**										
11. Selection rate	-0,03	-0,10	-0,02	-0,02	-0,07	-0,07	-0,09	-0,06	-0,01	-0,12									

12. Internal market rate	0,22	**0,36**	0,13	-0,14	-0,12	**0,32**	0,07	**-0,27**	**-0,36**	0,13	-0,03												
13. Employees under training actions	0,12	0,13	0,01	-0,26	-0,02	**0,23**	0,04	-0,11	-0,07	-0,05	-0,05	-0,09											
14. Training hours per employee	-0,05	0,00	-0,04	-0,12	-0,04	-0,12	-0,10	-0,010	-0,06	-0,06	-0,06	-0,01	-0,06										
15. Investment in training per employee	**0,41**	**0,29**	0,13	**-0,38**	-0,04	**0,29**	-0,10	-0,20	-0,15	-0,01	-0,17	**-0,24**	-0,19	-0,02									
16. Employees under formal performance evaluation	0,25	0,11	0,14	-0,17	-0,03	-0,13	-0,08	0,02	-0,01	-0,11	-0,04	-0,05	-0,21	-0,05	**-0,33**								
17. Employees under performance pay	0,16	0,20	0,09	**-0,33**	-0,04	-0,17	-0,09	0,04	-0,07	-0,05	-0,05	-0,20	-0,27	-0,06	-0,26	**0,54**							
18. Gender diversity rate (total)	-0,11	**-0,33**	-0,16	**-0,31**	-0,07	-0,06	-0,18	**0,40**	**-0,52**	-0,27	-0,02	**-0,38**	-0,05	-0,08	-0,03	-0,03	-0,11						
19. Gender diversity rate (in Executive Committee)	0,03	0,06	0,03	0,00	0,00	0,07	0,11	0,02	-0,02	-0,18	-0,09	-0,01	-0,04	-0,25	**-0,34**	-0,19	-0,20	-0,15					
20. Average age of workforce	-0,14	**-0,40**	0,06	0,19	0,12	0,27	0,04	**0,48**	**0,59**	-0,28	-0,05	**0,34**	-0,11	-0,24	-0,07	-0,00	-0,14	**-0,59**	-0,15				

Bold figures indicate p<.001

Table 4. Regression analyses: The effects of HRM variables over financial indicators

	PRODUCTIVITY		HC ROI		EBITDA	
	b	Beta	b	Beta	b	Beta
(Constant)						
Employees per HR staff member	-0,471	-0,819 **	-0,458	-0,568 **	-0,935	-1,231 **
Permanent contracts			0,111	0,246	-0,177	-0,412 **
Absenteism rate					0,148	0,224
Attrition rate					-0,440	-0,721 **
Turnover rate	-0,303	-0,663 **	-0,292	-0,455 **		
Renovation rate	0,496	0,702 **	0,689	0,695 **	-0,343	-0,367 **
Selection rate						
Internal market rate					-0,306	-0,559 **
Training hours per employee	-5,727	-1,284 **	-7,119	-1,139 **	0,143	0,273
Employees under training actions					-3,329	-0,558
Employees under formal performance evaluation	-0,177	-0,410 **			-0,385	-0,661 **
Employees under performance pay	0,269	0,651 **	0,159	0,274	0,311	0,558 **
Gender diversity rate (in Executive Commitee)	0,500	1,001 **	0,525	0,750 **	0,389	0,581 **
Average age of workforce					0,715	1,050 **
Manufacturing sector					-1,018	-0,761 **
Insurance sector						
Banking sector	-0,370	-0,344 **			-0,986	-0,691 **
IT sector			-0,566	-0,375 **		
R-Square	0,867		0,814		0,948	
Adjusted R-Square	0,805		0,727		0,867	

**p<.01

[1] This procedure is generally followed on a yearly basis as part of the benchmarking process.
[2] Not inclusive of salaries and benefits of HR staff.
[3] The calculation of the workforce includes both permanent and temporary contracts. Contingent workers are not included in the calculation, since their cost is not computed as part of the personnel category.
[4] By convention, the payroll figure in the national system comprises both direct salary and the cost of social security and public social benefits corresponding to every worker.

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